Do underwriters certify value? Evidence from UK rights issues and open offers

Do Underwriters Certify Value?
Evidence from UK Rights Issues and Open Offers

SETH ARMITAGE

*The author is from the School of Management and Languages, Heriot-Watt University.

He thanks an anonymous referee and Andy Snell for very helpful comments, Elizabeth McDiarmid and Kevin Acton for research assistance, Extel Financial Ltd for allowing generous access to their database of share issue prospectuses, and the Economic and Social Research Council (UK) and Walter Scott & Partners for financial support. The research was partly funded by ESRC number: R000221760.

Address for correspondence: Seth Armitage, School of Management and Languages, Heriot-Watt University, Edinburgh EH14 4AS, UK.

Email: s.e.armitage@hw.ac.uk

Published in *Journal of Business Finance and Accounting* 29, 2002, pp.1239-73

Do Underwriters Certify Value?
Evidence from UK Rights Issues and Open Offers

Abstract

Eckbo and Masulis (1992) and Slovin, Sushka and Lai (2000) have proposed that underwriters of seasoned equity offers certify issuer value. The study tests predictions resulting from these papers and finds little evidence from UK rights issues and open offers that underwriting banks certify. The main purpose of underwriting appears to be simply to guarantee the proceeds. There is a positive reaction to open offers (a type of private placing) but this is unlikely to be due to underwriter certification. There is a large loss of value for companies announcing deeply discounted offers, which is attributed to release of bad news on announcement.

Keywords: rights issues, open offers, underwriting, discount, certification.

1. INTRODUCTION

One of the decisions companies take when making a seasoned equity offer (SEO) is the type of offer to use, including how much of the offer, if any, should be underwritten. It has been suggested that a major benefit of underwriting is that the underwriting bank certifies the value of the issuing company, and the purpose of this paper is to examine whether this is so in UK rights issues and open offers. In particular, the paper tests predictions arising from the theory of issue method developed by Eckbo and Masulis (EM, 1992) and from the view of underwriter certification proposed by Slovin, Sushka and Lai (SSL, 2000).

The EM theory extends the model of Myers and Majluf (1984), which predicts a negative reaction to the announcement of SEOs because the decision to issue implies that the issuer is more likely to be overvalued than undervalued, if the shares are sold to new investors. The feature added by EM is that underwriting by the arranger is assumed to provide imperfect certification that the issuer is not overvalued, which enables the issuer to sell shares at a higher price. The value of this certification benefit is negatively related to the proportion of the issue expected to be taken up by existing shareholders, so a higher take-up implies a lower probability that the issue will be underwritten. The predictions regarding market reaction depend on how reliable certification is assumed to be. EM assume that certification is sufficiently unreliable that the positive effect of underwriting on market price is less than the negative effect of low take-up in underwritten offers.

SSL's study of SEOs in the UK endorses the idea that underwriters certify value, but argues that certification is more reliable than EM assume, and can result in an increase in issuer value. SSL find that the reaction to non-underwritten rights issues is more negative than to underwritten rights issues, and that the reaction to bought deals is positive. Their interpretation is that the reliability of underwriter certification depends on the type of offer and risk to the underwriter, with bought deals carrying reliable certification and non-underwritten rights zero certification.

The current paper uses data from UK rights issues and open offers, the most common methods of issue in the 1990s. An open offer is a private placing with pre-emption rights preserved. Shares in the open offer are placed by verbal agreement with new investors before

the offer is announced, but existing shareholders retain the right to subscribe in proportion to their current holdings. The EM theory predicts that the proportion of an issue underwritten is negatively related to the take-up by existing shareholders, but we do not find this using proxies for expected take-up. Rather, issues are normally fully underwritten except to the extent that legally binding commitments have been given in advance of the public announcement to buy some or all of the shares. Although non-underwritten offers have relatively deep discounts, companies very rarely use a deep discount on its own as a substitute for underwriting. The shares in most non-underwritten offers are mainly or entirely pre-committed. This is consistent with the view of the Monopolies and Mergers Commission (MMC, 1999) that UK companies are very concerned with certainty of the proceeds in an SEO. The EM theory further predicts that abnormal returns on announcement are negatively related to the proportion underwritten, and that they are positively related to take-up by existing shareholders. But abnormal returns are not related either to the proportion underwritten or to proxies for take-up.

SSL suggest that the reliability of underwriter certification depends on the financial risk borne by the underwriter. The arranging bank bears little risk if it underwrites either a rights issue or an open offer, so the SSL view predicts that the market reaction to both types of offer is similar. Since the take-up by existing shareholders is almost certainly lower in open offers than in rights issues, the EM theory likewise predicts a similar, or more negative, response to open offers. However, we find that the average abnormal return on announcement of offers 50% or more underwritten is -2.6% for rights issues and 2.9% for open offers. The difference in reaction emerges both in the full sample and in a much smaller sample with no major news in the prospectus other than the offer itself. The lack of event study evidence that underwriting banks certify, together with the finding that underwriting is a substitute for pre-commitment, imply that the primary benefit of underwriting is to guarantee the proceeds, and that the explanation for the positive reaction to open offers should be sought elsewhere than in underwriter certification. In both open offers and private placings, blocks of shares are sold to investors through private negotiation before announcement. Other studies have reported a positive reaction to private placings, and the reasons they advance provide possible

explanations for the positive reaction we find to open offers. These reasons include certification of issuer value by placees (Hertzel and Smith, 1993), improved monitoring by the new investors (Wruck, 1989), and know-how from the new investors and increased probability of the issuer being taken over (Cronqvist and Nilsson, 2000).

A further result from the event study is that a deeper discount is associated with a more negative abnormal return, as SSL also find. Their interpretation is that a deep discount is a substitute for underwriting in a non-underwritten issue, with no certification, and that in an underwritten issue it signals that the value certified is below the prevailing market price. We offer a different explanation. Four fifths of the issuers choosing a deep discount (30% to the market price or deeper) are in difficulty, and the reaction on announcement for the minority of healthy companies is close to zero. We infer that the loss in value associated with deep discounts is primarily explained by bad news released on announcement or during the offer, and that offer prices are adjusted downwards by companies which anticipate a fall in share price. Whilst deep discounts are associated with overvalued issuers, the cause of the price fall on announcement is not the deep discount itself.

The paper proceeds as follows. The next section outlines the arguments of EM and SSL, sets out the predictions to be tested, and reviews existing evidence. Section 3 describes selling and underwriting arrangements in UK rights issues and open offers, and tests whether the proportion underwritten is related to the proportion taken up by existing shareholders. Section 4 presents the event study evidence and Section 5 concludes.

2. UNDERWRITER CERTIFICATION

(i) The Eckbo-Masulis Theory

The EM theory builds on the model of Myers and Majluf (1984), in which it is assumed that managers are better informed about the company's value than outsiders, and that they maximise the intrinsic (full information) value of the existing shares. If the new shares are all sold to new investors, and the managers know the company is overvalued, they will always issue. But they will not issue if the company is sufficiently undervalued that the loss to existing shareholders arising from selling new shares at below their intrinsic value exceeds

the existing holders' share of the gain from the 'project' to be financed by the proceeds. A decision to issue therefore signals that the highest estimates of the intrinsic value of the company are ruled out, and implies that the company is more likely than not to be overvalued at the market price before the announcement. So the market price is predicted to fall on announcement. The net benefit of issue is $[P'/(P' + E)](E + a + b) - a$, where a is the intrinsic value of assets in place, b is the NPV of an investment opportunity for which new equity is required ($b \geq 0$), P' is the market value of the existing shares after announcement of the issue, and E is the proceeds raised from new investors. $[P'/(P' + E)](E + a + b)$ is the intrinsic value of the existing shareholders' equity if the company issues and invests; a is the intrinsic value of their equity if there is no issue and the investment opportunity is not taken (so $b = 0$).

EM write the net benefit of issue as $b - (c + f)$, where c is the cost or benefit arising from selling shares to new investors at below or above their intrinsic value, and f is the direct costs of issue. The intrinsic value of the existing equity is $a + b$, ignoring all costs of issue and therefore assuming that the investment opportunity is taken. With information asymmetry, P' may be higher or lower than $a + b$, and

$$c = a + b - [P'/(P' + E)](E + a + b). \quad (1)$$

It can be seen that c is positive (a cost) if $P' < a + b$. E varies with a number of factors, but EM focus on the proportion of the new shares bought by existing holders, k, which they assume is given exogenously. If $k = 1$, $E = 0$ and so $c = 0$. The company will always issue so long as $b > f$, even if it is very undervalued, so the predicted change in share price is zero or slightly positive when the issue is announced (slightly positive if there was uncertainty before the issue announcement about whether b exceeded f). If $k < 1$, some funds are raised from new investors, so the share price is expected to fall on announcement of the issue, and c could be non-zero because $E > 0$. Other things equal, as k diminishes, E increases, and both the loss in market value on announcement and c increase (lower P' entails higher c). Myers and Majluf (p. 206) report the results of numerical experiments which show how the loss in market value varies with the proportion of a project financed by cash in hand, which has the same effect as varying k.

EM assume that underwriting provides imperfect certification to investors that the issuer is not overvalued. Although a non-underwritten issue still requires the services of an intermediary, the assumption is that certification of value by the intermediary is more reliable if it has underwritten the issue. Underwriting therefore results in a higher P' than would result from a non-underwritten issue, so underwriting reduces c. The company opts for underwriting, given its knowledge of k, if $b - (c + f)$ is both positive and larger than $b - (c + f)$ for a non-underwritten offer. If $k = 1$, both undervalued and overvalued companies will issue (if $b > f$) and will choose a non-underwritten offer, because c is zero and non-underwritten offers have the lowest direct costs. If $k = 0$, companies which issue will choose an underwritten offer because the benefit from a smaller c is assumed to exceed the extra cost of underwriting (a higher f). Some undervalued companies with $k = 0$ will choose not to issue, whereas overvalued companies will always issue, unless the underwriter refuses to certify that the company is not overvalued. In this case, the company either issues at a lower underwritten price, or does not issue. For any company there is some value k^*, where $1 > k^* \geq 0$, below which underwriting becomes worthwhile, if it issues at all. Whilst underwritten issues will be more expensive than non-underwritten issues in terms of direct costs, the net benefit [$= b - (c + f)$] of an underwritten issue will be greater than if it were not underwritten, given k. Because underwriter certification of value is imperfect, the negative relation between abnormal return on announcement and k is expected to be preserved. Bøhren, Eckbo and Michalsen (1997, p. 233) note the possibility that screening by underwriters may prevent so many overvalued companies from issuing that there is a positive reaction to underwritten offers. This possibility is not made explicit in EM (1992). Both they and Bøhren et al. clearly regard the theory as predicting a more negative reaction to underwritten offers (EM, 1992, pp. 314 and 325; Bøhren et al., 1997, pp. 229 and 249).

The theory as outlined so far is a theory of the circumstances in which issuers pay for underwriting. It does not explain why companies might prefer a firm commitment to an underwritten rights issue nor, more generally, how companies choose between different types of underwritten offer. EM make no distinction between types of underwritten offer in terms of the reliability of certification. They state that there are ‘additional issuer-borne rights

distribution costs' implied by the underwritten rights method (p. 312), and that below a certain value of *k* it becomes cheaper to opt for a firm commitment. We test the following three predictions resulting from the EM theory.

P1. The proportion underwritten is negatively related to *k*, the proportion of shares expected to be sold to existing shareholders. This follows because the benefit of underwriting is to increase *P′*. A lower *k* implies a higher *E*, which implies a lower *P′* in the absence of underwriting. It also means there is a higher proportion of non-subscribers, and it is they who benefit from a higher *P'*. Since there are proportions underwritten between 100% and 0%, we express underwriting as a continuous variable rather than all-or-nothing.

P2. Abnormal returns on announcement are negatively related to the proportion underwritten.

P3. Abnormal returns on announcement are positively related to *k*, unless P1 is true but P2 is false (ie underwriting has a positive effect on market reaction).

The theory as presented by EM (1992) and Bøhren et al. (1997) predicts that P1, P2 and P3 are all true.

Supporting evidence has so far been provided by EM using US data and Bøhren et al. using Norwegian data. EM note that there are substantial commitments to subscribe made before the announcement by existing shareholders in non-underwritten rights issues, but virtually none in underwritten issues, as expected if *k* affects whether the issue is underwritten (P1). They confirm earlier findings that the average abnormal return is less negative on announcement of rights issues than of firm commitment offers, although there is no difference between the average abnormal return for non-underwritten and underwritten rights. They augment this with a cross-sectional regression in which the dependent variable for each issue is the abnormal return on announcement with direct costs per share added back, and the explanatory variables include a dummy for an underwritten issue and a dummy for a firm commitment. The results are not clear-cut, but the authors conclude that 'the market reaction net of flotation costs is most negative for underwritten offerings and least negative for uninsured rights' (p. 325), which supports P2.

Bøhren et al. provide further support for the theory. There are no firm commitments in Norway, but they confirm that underwriting increases the direct costs of rights issues. Subscription pre-commitments are rarely reported, so they measure *k* as one minus the proportion of rights sold during the offer period. They construct a model to predict *k* and find that whether an offer is underwritten is negatively related to their proxy for *k*, as P1 predicts. They also find that the average abnormal return on announcement is positive for non-underwritten issues and marginally negative for underwritten issues, which is consistent with P2 .

(ii) The View of Slovin, Sushka and Lai

SSL examine abnormal returns on announcement of UK rights issues and bought deals.[1] They describe a bought deal as 'a non-rights method of flotation in which an underwriter purchases an equity offering from the issuing firm on the spot at a fixed price, and sells the shares to clients...' (p. 158). This contrasts with private placings and open offers, in which the shares are placed by private negotiation with investors *before* the price is fixed and the issue is publicly announced. SSL find that the average abnormal return on announcement is 3.3% for bought deals, -2.9% for underwritten rights issues and -5.0% for non-underwritten rights, though the difference between the latter two figures is not significant. These findings are not consistent with P2. SSL's interpretation is that the reliability of underwriter certification depends on the risk. The underwriter has most risk in a bought deal, so has most incentive to verify that the issuer is not overvalued in that type of offer. The risk is less in underwritten rights issues, because the underwriter will only be called upon to buy shares if the market price is below the offer price by the end of the offer period, and most rights issues are made at a substantial discount. There is no financial risk to the arranger in a non-underwritten issue. The authors argue that undervalued companies choose bought deals, with the most rigorous evaluation by the underwriter, to distinguish themselves from other issuers and to increase ownership dispersion.

The current paper examines rights issues and open offers. Section 3 below explains that the risk to the underwriter is very small in an open offer, as in a rights issue. If market

reaction is affected by reliability of underwriter certification, as SSL contend, there should be little difference between the reactions to underwritten rights issues and underwritten open offers. EM do not consider either open offers or bought deals, but their theory predicts that the reaction to SEOs depends on *k* (P3). It would be natural to suppose that *k* is higher in rights issues, because an open offer involves a placing of shares with new investors, so there is little point in choosing an open offer if the issuer expects most of the shares to be taken up by the existing holders. *k* is less than one in 32% of rights issues and 64% of open offers according to the proxy we can calculate for both types of offer. Hence, a further prediction from both EM and SSL is:

P4. The average abnormal return (AAR) on announcement of underwritten open offers is equal to or less than the AAR on announcement of underwritten rights issues.

3. EXPLAINING THE PROPORTION UNDERWRITTEN

(i) Types of Offer and Underwriter Risk

The types of SEO for cash in the UK are rights issues, open offers, private placings and bought deals.[2] In a rights issue the new shares are issued in nil-paid form pro rata to existing shareholders, and the offer lasts a minimum of three weeks. Nil-paid shares (rights) which shareholders do not wish to take up are sold on the market (unless the rights are pre-renounced, which is explained below). The rights will have a value so long as the company's share price remains above the offer price during the offer. An open offer can be described as a private placing with pre-emption rights preserved. The normal procedure is that the arranging bank or broker negotiates privately with investing institutions over several days before the public announcement, so that by the announcement day the arranger has a list of placees who have agreed verbally to buy blocks of shares. Potential placees agree to become insiders and are obliged not to trade in the issuer's shares until after the announcement. Legally binding contracts to buy are signed on or after the announcement day. It is not necessary to find placees for shares which existing shareholders or other interested parties have already committed themselves to buy. The new shares are offered pro rata to existing shareholders, as in a rights issue, and if taken up they are said to be 'clawed back' from the placees. But the

rights in an open offer are entitlements only, not new shares in nil-paid form. The entitlements can not be sold and have no value if not taken up. Shares not clawed back are allocated to the placees at the end of the offer at the offer price, and our data shows that on average about half the shares are not clawed back.

In a private placing or subscription, and in a bought deal, one or more investors agrees to buy shares which are not offered pro rata to existing shareholders. Shareholders must have voted in advance to disapply pre-emption rights. A private placing can be made either on a stand-alone basis or alongside a rights issue or open offer, in which case the placing is described in the same prospectus and the shares are placed at the same price as the shares in the rights issue or open offer. The sequence is reversed in a bought deal: the arranging bank buys the new shares at a fixed price, the issue is announced, and then the arranger finds placees. It is clear from prospectuses that the placings accompanying rights issues and open offers are not bought deals, because the placee(s) has already agreed to buy the shares by the time the offer is announced.

The contractual role of the arranger as underwriter is to buy unsold shares at the offer price, up to the limit of its underwriting commitment. However, it is routine for the underwriting bank in a rights issue or open offer to transfer the underwriting risk and part of its fee to investing institutions on the announcement day (a fact not mentioned by SSL). When institutions accept the risk by signing an underwriting contract, the shares are said to have been sub-underwritten in a rights issue and placed with clawback or placed conditionally in an open offer (they will already have been placed by verbal agreement). In a rights issue the sub-underwriters are providing a guarantee; they will not receive any shares unless the market price is below the offer price at the end of the offer, in which case rights not already taken up can not be sold on the market. In an open offer the placees are not merely providing a guarantee: they buy all the shares not clawed back by existing shareholders. The sub-underwriting or placing contract is between the arranger and the sub-underwriter/placee; the arranger remains liable to the issuer for guaranteeing purchase of shares it has underwritten. For non-underwritten shares, the arranger is still paid to use its ‘reasonable endeavours’ to find buyers, but provides no guarantee.

The question of whether shares are placed before or after they are underwritten (if they are underwritten) is important in understanding the role the underwriter. If the shares are placed verbally or contractually before the announcement, as in an open offer or a private placing, potential placees can investigate the issuer, decide whether to invest and how much they wish to buy, and indicate the maximum price they are prepared to pay for the new shares. The price can then be set with the benefit of this information, and the issue announced. The arranger has very little financial risk in underwriting either a rights issue or an open offer or a private placing, and so has little additional incentive to evaluate the issuer if it underwrites. The risk in underwriting a rights issue is that the arranger fails to find enough sub-underwriters after the announcement, but this risk can be made as small as is seen fit by setting a lower offer price. This does not harm non-subscribers because they can sell the rights. Risk in underwriting an open offer or private placing can only arise if placees have not been found for all the shares by the announcement day, or if a placee reneges on a verbal agreement by declining to sign a placing contract.[3] Discounts tend to be less deep in open offers, because non-subscribers can not sell their rights. The pre-announcement placing process means the issue has effectively been sold at an offer price known to be acceptable to the placees.

(ii) Features of the Sample

Our initial sample consists of 1,378 issues, 928 rights issues and 450 open offers, made between 1 January, 1985 and 30 September, 1996. 1,168 of the issues were made in the 1990s. The first open offer in the sample was in 1987 and there were only 20 before 1990, but they had become as common as rights issues by 1996. The information on issues comes from prospectuses (listing particulars) and from company announcements to the London Stock Exchange, both available from Primark Extel.[4] The prospectus is sent to shareholders on the day the issue is announced.

Table 1 provides descriptive statistics by type of issue for the proportion underwritten and for several other variables which are relevant to the study. 42% of issues are less than 100% underwritten, including 13% which are entirely non-underwritten.[5] In nearly two thirds

of issues, the prospectus records that commitments have been received to subscribe for some or all of the shares, and the average proportion pre-committed in these issues is 30%. Pre-commitments include undertakings by existing shareholders to subscribe for their entitlements and undertakings by parties other than the arranger to buy or underwrite shares to which they are not initially entitled. Shares in a private placing accompanying the rights issue or open offer are also counted as pre-committed; the placees in most cases are new investors. The above undertakings are usually given by named individual or corporate investors, rather than by investing institutions. There is a case for including all open offer shares as pre-committed, on the assumption that placees will have been found and will have given verbal agreements by the announcement day. However, these agreements are not legally binding and prospectuses do not explicitly record them or name the placees, so we do not treat them as pre-commitments.

Table 1 around here

28% of rights issues and 47% of open offers have entitlements which have been pre-renounced; the prospectus records that the shareholders entitled to the shares will definitely not be subscribing. The average proportion pre-renounced in these issues is 32%. Pre-renounced shares in open offers are ‘placed firm’ before the announcement along with other shares ‘placed with clawback’. Pre-renounced shares in rights issues are also placed before or on the announcement day; they are not sold on the market. The placees are usually new investors in the form of unnamed institutions procured, or about to be procured, by the broker. Pre-renounced shares which have not been underwritten by the arranger but which are recorded explicitly as having been placed are counted as pre-committed. If it is unclear whether pre-renounced shares have been placed, they are not counted as pre-committed.

We have restricted pre-commitments to undertakings to buy which are clearly stated in the prospectus. It is not always certain that the undertaking is legally binding, and reporting practice regarding pre-commitments may not be entirely consistent across prospectuses. But statements regarding pre-commitments and pre-renunciations are normally treated as

important information and can be expected to be accurate. They are given prominence in the Chairman's letter which introduces the prospectus, as well as being recorded under 'Additional Information' at the back. The MMC (1999) report on underwriting services contains no criticism of the scope or reliability of information in prospectuses.

Table 1 shows, in addition, average and median discounts to the market price before the announcement, and to the theoretical ex-rights price (TERP). The TERP is defined as $P_B[S/(S + N)] + P_O[N/(S + N)]$, where P_B is the mid-point share price at the close of the day before the announcement, P_O is the offer price, S is the number of existing shares and N is the number of new shares offered pro rata to existing shareholders.[6] If there is a dividend to which the existing shares are entitled but not the new shares, the after tax dividend per share is subtracted from the value of the market price in calculating the discount. Issues at a premium of more than 5% to the market price are excluded from analysis involving discounts. Most are associated with a capital reorganisation which means that the premium is illusory. The average discount to the market price in rights issues is 21.0% (median 17.6%) compared with an average of 13.0% (7.8%) in open offers. Results are reported using discount to market price (*discount*), but throughout the paper the results are similar using discount to TERP (the correlation between the two measures is 0.92).

(iii) Proxies for k

EM (1992) and Bøhren et al. (1997) assume that the issuer has a good estimate of k before the offer and that investors can infer k from information announced and from trading of rights during the offer. Prospectuses do indeed provide information which helps investors to estimate k. Statements in prospectuses and discussions with investment bankers indicate that pre-renounced and privately placed shares are normally placed with new investors, though in a few cases the shares are privately placed with an existing shareholder(s) who has agreed to subscribe for shares in addition to his entitlement. These shares are excluded in arriving at a *% privately placed (new)* variable. One proxy for k is therefore 1 - (*% pre-renounced + % privately placed (new)*, and this can be calculated for both types of issue. It is an ex ante proxy based on information known before the announcement and made public on

the announcement day. It overstates *k* because it assumes that all shares not pre-renounced or privately placed with new investors are taken up by existing shareholders.

In open offers only, the percentage of shares taken up by existing shareholders can be used as a proxy for expected take-up. In both rights issues and open offers, the broker usually announces the take-up shortly after the close of the offer,[7] but the take-up in rights issues includes subscriptions by buyers of rights sold during the offer period, so it can not be used as a proxy for expected take-up by *existing* shareholders. Since entitlements can not be sold in open offers, the open offer take-up is entirely by existing shareholders. Thus we can construct a second proxy for *k*: *% take-up + % privately placed (old)*. *% take-up* is the take-up expressed as a proportion of the total offer including privately placed shares; *% privately placed (old)* is the proportion privately placed with existing shareholders. This second proxy is an accurate measure of *k* ex post. We exclude offers in which the share price is below the offer price at offer close, because the actual take-up in such offers is likely to be lower than the take-up expected ex ante, and we exclude offers for which we lack a share price at close. The average take-up or claw-back of open offer shares (offered pro rata to existing shareholders) is 48% for all offers and 54% for those not excluded.

The EM theory assumes that *k* is exogenous, and so is not affected by the discount. This is reasonable in rights issues; whilst a deeper discount increases the value of the rights, it does not increase the incentive for existing holders to take up their rights because the rights can be sold. A deeper discount in an open offer gives existing holders more incentive to subscribe, which potentially increases *k*. However, depth of discount does not appear to be the main factor affecting take-up in open offers. The correlations in open offers between *discount* and the first and second proxies for *k* are -0.16 and -0.19 respectively: a deeper discount is associated with a smaller take-up by existing holders, despite the larger sacrifice a deeper discount implies for non-subscribers.

(iv) Underwriting as a Guarantee

An alternative view of underwriting is that its main purpose is the obvious one of guaranteeing the proceeds, except to the extent that they are already guaranteed through pre-

commitments. This view need not imply that the arranger of an SEO has no certification role at all. Rather, it implies that whether and how much of the issue the arranger underwrites makes little difference to the reliability of its certification, because the arranger's reputation is at stake when it brings an issue to market, whether or not it underwrites, and the financial risk to the arranger from underwriting is small. On this view, the extra cost associated with underwriting reported in several studies is due mostly to the insurance premium for expected loss paid to sub-underwriting institutions or placees, not to an extra fee for certification.[8] The hypothesis that underwriting is primarily a guarantee predicts a negative relation between *% underwritten* and *% pre-committed*, and no particular relation between *% underwritten* and proxies for *k*: the EM theory predicts a negative relation between *% underwritten* and proxies for *k* (P1), and no particular relation between *% underwritten* and *% pre-committed*, since the latter includes pre-commitments by a mixture of existing shareholders and new investors.

The contrast between the two views of underwriting is clear when one compares (a) an issue mainly pre-committed with new investors (*k* close to 0), for example an issue with most of the shares pre-renounced and placed with new investors, with (b) an issue with high expected take-up (*k* close to 1) and no pre-commitments. If the purpose of underwriting is to certify value and the EM theory is true, the arranger would be expected to underwrite issue (a) but not issue (b). If the purpose of underwriting is to guarantee receipt of the proceeds, the arranger would be expected not to underwrite issue (a), except for the shares not pre-committed, but to underwrite issue (b).

(iv) Results

The correlation coefficients reported in Panel A of Table 2 indicate very clearly that underwriting and pre-commitment are substitutes. The correlation between *% underwritten* and *% pre-committed* is -0.77. The correlations between *% underwritten* and the proxies for *k* are positive, the opposite of the sign predicted by the EM theory.[9] These positive correlations are because pre-commitment is more by new investors than by existing shareholders: *% pre-committed* is negatively related to *k* (the correlations with the first and second proxies for *k* are -0.33 and -0.27 respectively). The finding that underwriting and pre-commitments are

substitutes is, of course, consistent with the US evidence in EM (1992) of substantial pre-commitments by existing shareholders in non-underwritten rights issues.

Table 2 around here

Two other factors which might affect *% underwritten* are share volatility and *discount*. Our measure of share volatility is the standard deviation (*std dev*) of daily returns on the issuer's shares calculated during an estimation period of 160 days, 80 on either side of a period from five days before the announcement to 20 days after the close of the offer. The expected relation between *% underwritten* and *std dev* is uncertain a priori: greater volatility increases the value of underwriting, but investment banks may decline to underwrite issuers with a volatile share price. *Discount* could affect *% underwritten* because a deeper discount reduces the need for underwriting to ensure subscription. In SSL's sample, the average discount in non-underwritten rights issues is significantly deeper than in underwritten issues, prompting them to suggest that a deep discount is a substitute for underwriting (p. 167).

Panel B of Table 3 reports the results of OLS regressions with *% underwritten* as the dependent variable.[10] *Std dev* and *discount* have significant coefficients, but they do not affect the conclusion from the correlations in Panel A. *% pre-committed* is much the most important variable in explaining *% underwritten*, and the coefficients on the proxies for *k* are positive, the wrong sign in terms of the EM theory. Greater share price volatility is associated with less underwriting, as Bøhren et al. also find, so there may be a reluctance to underwrite riskier companies.[11] *Std dev* is cross-correlated with *% pre-committed* (correlation coefficient = 0.28 for full sample) and with *discount* (0.35); these relations suggest that issuers with a volatile share price tend to seek more pre-commitments and to choose a deeper discount.

A deeper (larger) discount is associated with a smaller proportion underwritten, as expected (correlation = -0.35 for rights issues and -0.29 for open offers), and the 84 rights issues and 87 open offers with zero underwriting by the arranger have average discounts significantly deeper than the discounts of the remaining rights issues and open offers, which tallies with SSL's finding for rights issues. However, deep discounts on their own are rarely a

substitute for underwriting. In the regressions including *% pre-committed*, *discount* is negative for the rights issue sample, but nothing like as significant as *% pre-committed*, whilst *discount* is positive, though not significant, for the open offers sample. Consideration of the samples of deep discount and non-underwritten issues throws light on the regression results. 174 rights issues and open offers are made at a discount of 30% or deeper to the market price, but in only 16 of them is underwriting by the arranger plus pre-commitment less than 50%. In other words, only 16 issues appear to rely primarily on a deep discount to ensure subscription. In the 171 non-underwritten rights issues and open offers, the average proportion pre-committed is 69.2%, compared with 11.7% in the remaining issues, and only 48 of the non-underwritten issues have pre-commitment of less than 50%. The MMC report (1999, p. 31), based on extensive interview and survey evidence, notes that company executives are very concerned to achieve certainty about the proceeds from the offer, and this concern would explain our findings.[12] Certainty is achieved from pre-commitments and from underwriting, but not from a deep discount, though a deeper discount may help in obtaining pre-commitments (the correlation between *% pre-committed* and *discount* is 0.31 for rights issues and 0.38 for open offers).

A final point is the weaker negative correlation between *% underwritten* and *% pre-committed* for open offers than for rights issues. The reason for this is that there is a much higher proportion of open offers accompanied by private placings (Table 1), and some private placings are underwritten. Placings with one or two parties named in the prospectus are rarely underwritten; the underwritten placings are mainly those in which the shares have been sold to a group of institutions, as in an initial public offer by placing. Although we class all privately placed shares as pre-committed, the placing process in underwritten placings may not always be complete by the announcement date.

4. EVENT STUDY EVIDENCE

(i) Data and Method

We found share data in Primark Extel's database for 1,226 of the 1,378 offers in the sample. There were two problems with the data, both of which could affect other studies.

First, Extel often retains a daily price for periods during which trading in the share has been suspended by the Stock Exchange. We removed 70 offers announced when the shares were in suspension, since in these cases the price could not change on news of the offer. Extel records the dates when a share is suspended and when trading is resumed. Second, the record of daily prices is not always adjusted for the effect of the share going ex-rights, which occurs after the announcement. This is easiest to explain through an example. Suppose there are 100 shares in issue and the market price the evening before the ex-day is 80p. 100 new shares are being issued at an offer price of 40p. Other things equal, the market price falls to the TERP (60p) on the ex-day, because the share loses a right which is worth 20p. The record of prices before the ex-day is normally multiplied by an adjustment factor, which in this case would be 0.75. The adjusted record would be 60p the day before the ex-date and 60p on the ex-date. With no adjustment, the record would be 80p followed by 60p, so failure to adjust means that returns are biased downwards after the announcement. In view of this, we removed 61 issues for which (i) the unadjusted market price for the day before the ex-day is above the offer price and (ii) Extel's adjustment factor equals one on the ex-date, ie no adjustment is made. Extel records the ex-date and both unadjusted and adjusted prices. We removed a further 87 offers which we were unable to check for suspension and non-adjustment, leaving a total of 1,008 issues in the event study.

We report cumulative abnormal returns calculated by the method used by EM (1992). For each offer a market model regression is run using daily data and dummy variables to distinguish sub-periods of interest:

$$R_{it} = \alpha_i + \beta_i R_{Mt} + \gamma_{1i} D_{1t} + \gamma_{2i} D_{2t} + \gamma_{3i} D_{3t} + \gamma_{4i} D_{4t} + e_{it} \qquad (2)$$

where R_{it} = return on share i on day t; R_{Mt} = return on FT-Actuaries All Share Index on day t; D_{1t} = one for event days -1 to 0, and zero otherwise, day 0 being the announcement day; D_{2t} = one for days +1 to C-2, day C being the close of the offer; D_{3t} = one for days C-1 to C, and D_{4t} = one for days C+1 to C+20. If a share goes ex-dividend during the event period, the net dividend per share is added to the ex-day price to calculate the return on that day. The combined estimation and event period is from 85 days before the announcement (day 0) to 100 days after the close (day C). The offer close, days C-1 to C, is separated out because

trading in rights in a rights issue ceases, at the end of day C-2 (MMC, 1999, p. 246). The coefficient γ_i is a measure of the abnormal return for each day of the sub-period concerned. The cumulative abnormal return is γ_i times the number of days in the sub-period. γ_i can be averaged across the sample and the test statistic for the significance of the sub-period average γ_i is:

$$z = \sqrt{N}(\text{av}[\gamma_i/s_{\gamma i}]) \quad (3)$$

where N is the number of offers in the sample and $s_{\gamma i}$ is the standard error of the γ_i coefficient for share i. An advantage of this method is that it enables a significance test to be calculated for the offer period AAR (days +1 to C-2), despite the fact that offer periods vary in length. The results using conventional market model abnormal returns are very similar and are not reported.

(ii) Abnormal Returns around Rights Issues and Open Offers

Table 3 shows AARs by sub-period and type of offer. The announcement and offer period AARs are -2.24% and -2.67% respectively for rights issues, and 1.99% and -0.23% for open offers. The AARs at offer close and during the twenty days post offer are more positive for rights issues than for open offers, but the total AAR from the day before the announcement to 20 days after the offer close is -1.68% for rights issues compared with 3.20% for open offers. The two day announcement AAR for rights issues is slightly higher than the two day AAR of -3.09% reported for rights issues by SSL (2000).

To test the EM theory, we relate announcement ARs to *% underwritten* and to the two proxies for *k*, controlling for other factors which affect the reaction to an issue. The theory predicts a negative relation between ARs and *% underwritten* (P2) and a positive relation between ARs and the proxies for *k* (P3). Both EM and SSL predict a reaction to underwritten open offers no higher than to underwritten rights issues (P4). Table 4 shows univariate comparisons. In issues more than 50% underwritten, the announcement AAR is -2.58% for rights issues and 2.92% for open offers, a significant difference (t = 8.66) which is contrary to P4. The AAR for rights issues more than 50% underwritten is more negative than for rights issues less than 50% underwritten, though the difference is not significant. This is consistent

with the EM theory (P2) but not with SSL, who find that the AAR for their 200 underwritten rights issues is higher than for 20 non-underwritten rights. For open offers, underwriting is associated with a higher AAR, and the difference is significant at the 5% level. The open offer result is not consistent with the EM theory, but might suggest superior underwriter certification in underwritten open offers, consistent with SSL. However, the relation between ARs and *% underwritten* is not significant for open offers when *discount* is controlled for (Table 5).[13]

The univariate results involving the proxies for *k* provide little support for the EM theory. For open offers, the high *k* samples have higher AARs than the low *k* samples, consistent with P3, but the differences are not significant. For rights issues, the high *k* sample has a more negative AAR, contrary to P3. We also examine whether the presence of pre-renounced shares or of an accompanying private placing affects the market reaction. The AARs are higher for issues with pre-renounced shares, though not significantly so.[13] The AAR for rights issues accompanied by a private placing is 3.99%, compared with -2.57% for other rights issues, a difference significant at the 5% level. 29 of the 35 private placings concerned are non-underwritten, and the AAR for these is 4.75%, which would be hard to explain according to the SSL view. The AAR for open offers accompanied by a private placing is lower than the AAR for other open offers, but the difference is not significant. Finally, the AAR for discounts less deep than the median for the relevant offer type is significantly higher than the AAR for discounts deeper than the median.

Tables 3, 4 and 5 around here

Table 5 reports a selection of cross-sectional regression results with announcement ARs as the dependent variable. The relation between ARs and *% underwritten* is not significant for any of the samples, which supports neither the EM view that it is overvalued companies which choose underwriting (P2), nor the SSL view that underwriter certification is sufficiently effective that underwriting is associated with a higher abnormal returns. The coefficient on the first proxy for *k*, 1 - (*% pre-renounced + % privately placed (new)*), is

negative for all three samples and significant at the 5% level for the full sample and for rights issues, which is contrary to P3. The significant negative coefficient for rights issues is mainly because the coefficient on *% privately placed*, and on *% privately placed (new)*, is positive and highly significant for rights issues. *% privately placed* is positive but not significant for open offers. *% pre-renounced* is positive but not significant for either type of offer. The relation between ARs and the second proxy for *k*, *% take-up + % privately placed (old)*, has the positive sign predicted by the EM theory but is not significant.[15]

There is a significant negative relation between ARs and *discount* for all issues and for the sub-samples of rights issues and open offers (*discount* is also significant with offer period ARs as the dependent variable). This finding is consistent with SSL though not with several earlier studies of rights issues. Marsh (1977) for the UK, Tsangarakis (1996) for Greece and Bøhren et al (1997) for Norway find no relation between announcement AR and discount, while Bigelli (1998) for Italy and Loderer & Zimmerman (1988) for Switzerland find a positive relation. There is reason to expect a positive relation because, for a given amount raised and assuming unchanged or increased dividend per share, a deeper discount implies a higher dividend yield and larger total dividend post issue, which could be interpreted as a sign that the company is confident about paying more cash to shareholders. Bigelli (1998) presents evidence that the positive relation between market reaction and discount in Italy is due entirely to this effect. However, the variable that Bigelli finds explains the positive relation, *div yield*, is not significant in our regressions.

A final point from the cross-sectional evidence is that the difference in reaction by type of offer is confirmed. The coefficient on a dummy variable which equals one for a rights issue and zero for an open offer is negative and significant at the 5% level.[16]

(iii) Deep Discount Issues

In view of the negative relation between ARs and *discount*, and in view of the long-standing puzzle why more companies do not substitute a deep discount for underwriting, we investigate deep discount issues further. Table 6 shows that the abnormal loss in market value of companies choosing a deep discount is nearly 20% on announcement and during the offer,

though there is some recovery thereafter. To discover why companies choose a deep discount, we read the Chairman's letter to shareholders in the prospectuses of the 174 deep discount issues. The Chairman's letter runs for several pages, describing the background to the issue and other major events in train. There are a number of standard headings including reasons for the issue, terms of the issue and current trading. It turns out that many letters do not explicitly discuss or even mention the fact that the issue is at a deep discount,[17] but we infer the reason if possible, and the findings are shown in Table 7. 119 (68%) of the issuers were in serious trouble; either the company could not continue at all without an injection of new equity, or it was making the issue because there was an urgent need for funds due to poor performance. If the discount is referred to in these cases, it is always to say that the offer price is 'fair and reasonable' in the light of the poor performance. A further 22 (13%) of issuers had experienced some difficulty, though it is not certain that this was the reason for the issue or for the deep discount. Five (3%) were raising funds for investment in mining or technology projects, the speculative nature of which is emphasised in the letter. Only nine letters (5%) state that a reason for the deep discount was to avoid paying for underwriting by the arranger. There is no apparent reason in 21 (12%) of the letters. The evidence is consistent with submissions by corporate financiers to the MMC (1999, p. 30) that deep discounts are used for 'rescue' issues.

Tables 6 and 7 around here

Panel B of Table 7 shows announcement and offer period AARs for sub-samples of poorly performing and healthy deep discount issuers. 115 of the deep discounts have usable event study data. The AAR on announcement is -10.3% for the 81% of issues by poor performers compared with -0.4% for the issues by apparently healthy companies, though 76% of the ARs are negative. The offer period AAR is significantly negative for both sub-samples. The lack of reaction on announcement to deep discounts by healthy issuers implies that the large falls in price for poor performers are due to bad news released when the offer is announced rather than to the deep discount itself. We infer that the negative relation between

ARs and *discount* arises from adjustment of the offer price, and hence of the discount to the pre-announcement market price, in anticipation of a change in price on announcement or during the offer. For example, an issuer will anticipate a fall in price if it thinks that news on recent trading in the prospectus is worse than investors are expecting. Although the market does not react very adversely to a deep discount issue by a healthy company, the fact that most deep discount issues are by companies in trouble may be one of the reasons why healthy companies rarely use a deep discount as a substitute for underwriting (other possible reasons are discussed in MMC, 1999, pp. 29-31 and Marsh, 1994, pp. 34-7).[18]

(iv) Uncontaminated Results

Most of the offer announcements are 'contaminated' by other news, for example interim results, acquisitions or management changes. Contaminated announcements are presumably accepted in most event studies of SEOs, since no mention is made of removing them. As a check on the effect of contaminating news, Table 8 shows AARs for a 'clean' sample of 124 offers in which the only major event announced is the offer itself. The announcement and offer period results have the same pattern as those in Table 3; the contrast is, if anything, greater between the negative returns for rights issues and positive returns for open offers. There is no recovery post-offer in the 'clean' sample for either type of offer. In cross-sectional regressions (not shown), the coefficient on *discount* ceases to be significant with announcement ARs as the dependent variable but remains significant at the 5% level with offer period ARs. The much reduced significance for *discount* in the 'clean' sample is consistent with the hypothesis that companies adjust offer prices and discounts for anticipated changes in share price in response to news about to be released.

Table 8 around here

5. CONCLUSIONS

The evidence from UK rights issues and open offers lends little support to the assumption made by Eckbo and Masulis (1992) and Slovin, Sushka and Lai (2000) that a

major benefit of underwriting is certification of issuer value. The EM theory assigns a crucial role to *k*, the proportion of shares expected to be taken up by existing shareholders, in explaining the proportion underwritten. But it is the proportion of pre-committed shares which determines the proportion underwritten, not proxies for *k*. Offers are normally underwritten by the arranger except to the extent that binding commitments have been given before the offer is publicly announced. The EM theory predicts that the market reaction to announcements is negatively related to the proportion underwritten and positively related to the take-up by existing shareholders, but our evidence does not bear out these predictions.

SSL examine rights issues and bought deals, and argue that underwriters certify the value of issuers in the UK more reliably than EM assume. They argue that the reliability of certification depends on the financial risk borne by the underwriter. The hierarchy of underwriter risk is, in descending order, bought deal, underwritten rights issue and non-underwritten rights issue, and they find that the announcement AARs by offer type display the same hierarchy. Our evidence does not support the SSL view of certification, though we do not study bought deals. We find that rights issues less than 50% underwritten have a higher, not lower, AAR than other rights issues. Open offers less than 50% underwritten have a lower AAR than other open offers, as SSL would expect, but the relation between ARs and the proportion underwritten is not significant after controlling for discount. If the SSL argument were true, the market reaction should not differ between underwritten rights issues and underwritten open offers, because underwriting is no more risky in an open offer than in a rights issue. But the announcement AAR is 2.9% for underwritten open offers and -2.6% for underwritten rights issues. Our sample includes rights issues accompanied by a non-underwritten private placing. According to the SSL view, the announcement AAR ought to be at least as negative as the AAR for underwritten rights of -2.6%, but in fact it is 4.8%.

Both SSL and the current study find a strong negative relation between the market reaction and discount. SSL contend that a deep discount signals overvaluation: a deep discount in an underwritten issue implies that the share price the underwriter believes to be correct is below the issuer's current market price; a deep discount in a non-underwritten issue is used to substitute for underwriting to ensure subscription, presumably because the arranger

has declined to underwrite or because the certification benefit at a deep discount is not worth the extra cost. However, we find that deep discounts are rarely used on their own as a substitute for underwriting. All but 16 of the 174 issues at a deep discount (30% or deeper to the market price) are at least 50% pre-committed or underwritten. The prospectuses of deep discount issues indicate that four fifths of the issuers were in difficulty at the time of the offer, and there is little reaction on announcement to the minority of deep discount issues by healthy companies. So the large falls in price post-announcement appear to be due mainly to bad news released when the offer is announced, not to the deep discount itself. Thus, the price falls are neither because of the absence of underwriter certification (in a non-underwritten offer), nor because the discount is viewed as a signal that the certified value is less than pre-announcement market value (in an underwritten offer). We suggest that most deep discounts to pre-announcement prices are set deep in anticipation of release of bad news, and perhaps to help obtain pre-commitments. The fact that most deep discount issues are by companies in difficulty may be one reason why very few healthy companies use a deep discount as a substitute for underwriting.

Our findings suggest that the purpose of underwriting in UK rights issues and open offers is primarily to guarantee the amount underwritten rather than to certify that the issuer is not overvalued. The analysis of the proportion underwritten indicates that underwriting is used as a substitute for pre-commitment to achieve certainty of proceeds for the issuer. The analysis of abnormal returns provides little support for predictions resulting from an assumption that underwriters certify, either with uniform unreliability or with reliability dependent on the type of offer. Thus, underwriter certification is not, in our view, the explanation for the positive reaction to open offers (or to private placings). A more plausible explanation is that there is certification by investors, and that it is the placees' willingness to buy at the offer price that informs the market about the issuer's value, rather than the arranger's willingness to underwrite at the offer price. There may be other explanations. The advantages of open offers and the rapid growth in their use since the late 1980s merit further study.

NOTES

1. SSL use the term ‘placing’ and say that ‘a placing is a bought deal’ (p. 160). We refer to their placings as bought deals to avoid confusion with private placings.

2. The sources of information for rights issues, open offers and private placings are prospectuses, interviews with seven investment bankers in 1996, and *Rights Issues and Placings for UK Companies: A Guide*, 1995, privately produced by SG Warburg.

3. The author was told in interviews that it is rare for an institution to renege on a verbal placing agreement. Once the institution has signed a placing (or sub-underwriting) contract the only risk to the underwriting bank is that the institution defaults.

4. Extel provides scanned copies of prospectuses from 1 July 1991 onwards, and aims to include all issues by listed companies. Extel keeps some prospectuses on microfiche for issues before 1 July 1991, though its collection is incomplete. We include all issues from 1 January 1985 to 30 September 1996 for which Extel has a prospectus. Issues by foreign companies and by investment trusts (closed end investment funds) are excluded.

5. Some rights issues and open offers are accompanied by an issue of shares directly to shareholders of companies being acquired. We exclude these shares from the total for the issue. If the target company’s shareholders (the ‘vendors’ of the target’s shares) wish to keep the bidder’s new shares, they are merely distributed as ‘vendor consideration’ shares and are not underwritten. It would obviously be inappropriate to include vendor consideration shares in this study. If some of the vendors wish to sell the bidder’s shares, a ‘vendor placing’ may be organised in which shares are placed on behalf of the relevant vendors. Vendor placed shares are often underwritten, but they are not being sold by the issuer, so it seems best to exclude them. We also exclude shares placed on behalf of existing shareholders (secondary placings).

6. The difference between the market price and the TERP is the expected value of the right or part-right attached to each existing share. *N* excludes shares in an accompanying private placing, to which existing shares carry no entitlement.

7. The broker usually reports the number of shares taken up, as well as the percentage taken up, from which one can infer that the percentage take-up is often an overstatement of

the take-up by existing holders because the broker has excluded pre-renounced shares from the total of shares 'available in the offer' on announcement day. If an offer has pre-renounced shares and the take-up is reported as a percentage only, we record no figure for take-up as it is uncertain whether the percentage is of all the shares in the open offer or of shares not pre-renounced.

8. Armitage (2000) finds that direct costs of issue in the UK increase with the proportion underwritten, but that the costs are not related to factors likely to affect certification costs such as specific risk of the issuer's shares. However, there is some evidence that US underwriter remuneration is related to proxies for certification costs (Armitage, 1998, pp. 44-7).

9. The same results are found using 2x2 tables in which both variables take a value of either one or zero, and significance is tested by χ^2. *% underwritten* equals one if the issue is at least 50% underwritten; *% pre-committed* equals one if there are any pre-commitments; the first proxy for *k* equals one if *% pre-renounced + % privately placed (new)* = 0; the second proxy for *k* equals one if *% take-up + % privately placed (old)* ≥ 50%.

10. The results are similar when the regressions are run as logit regressions, with *% underwritten* equal to one if the issue is 50% or more underwritten and zero otherwise.

11. Underwriting fee rates are not related to issuer risk, which makes underwriting riskier issues less attractive (Armitage, 2000). However, discounts affect the risk of underwriting, and they vary considerably.

12. To the extent that an issue for cash is used to finance the acquisition of another company, the Takeover Panel requires the issue to be underwritten to ensure the company has the necessary funds (MMC, 1999, p. 54). 49% of the issues in our sample are partly or wholly to finance an acquisition.

13. The negative AAR for the 62 open offers less than 50% underwritten is due to 11 which are deeply discounted and have an AAR of -19.6%. Section 4(iii) suggests that the negative reaction to deep discounts is due primarily to the release of bad news on announcement, not to lack of underwriter certification.

14. SSL report a significantly more negative AAR for 20 underwritten rights issues with pre-renounced shares than for 180 underwritten rights issues without pre-renounced shares. We do not obtain this in our sample of 421 fully underwritten rights with event study data, 94 of which have pre-renounced shares.

15. SSL report a significantly positive relation between announcement ARs and the percentage take-up reported by brokers at the end of rights issues, and note that this is consistent with the EM theory. We obtain this finding but doubt its value as evidence for the theory, both because the reported take-up of rights includes subscriptions by buyers of rights in the market (including new investors) as well as by existing shareholders, and because a fall in price on announcement and during the offer can *cause* a low take-up if the share price is below the offer price at close. The relation between announcement AR and *% take-up* is not significant in either rights issues or open offers if issues in which the share price is below the offer price at close are excluded.

16. Other regressions, not reported, include issue proceeds, proceeds/issuer market capitalisation and an ownership concentration variable, none of which are significant. The only variables SSL find to be significant in explaining the reaction to rights issues are discount, take-up (but see note 15) and a dummy for pre-renounced shares (but see note 14).

17. A remarkable exception is the letter presenting the placing and open offer by Harrington Kilbride plc dated 23 August, 1995, which notes the Directors' opinion that 'the mid-market price... reflects market-makers' quotations for dealing in small quantities... [and not] the price at which investors would be prepared to invest further significant sums in the Company... Despite recent announcements... the market price reflects optimism about the future under new management instead of the current and recent trading performance' (p. 9).

18. There remains the question why there is no negative relation between ARs and discounts in markets other than the UK. The determination of the very variable discounts in those markets has been little studied. Also, the lack of relation between ARs and discounts in the UK before the mid-1980s (Marsh, 1977; SSL, 2000) warrants further investigation.

REFERENCES

Armitage, S. (1998) 'Seasoned Equity Offers and Rights Issues: A Review of the Evidence', *European Journal of Finance*, Vol. 4, pp. 29-59.

——— (2000), 'The Direct Costs of UK Rights Issues and Open Offers', *European Financial Management*, Vol. 6, pp. 57-68.

Bigelli, M. (1998), 'The Quasi-Split Effect, Active Insiders and the Italian Market Reaction to Equity Rights Issues', *European Financial Management*, Vol. 4, pp. 185-206.

Bøhren, Ø., B.E. Eckbo & D. Michalsen (1997), 'Why Underwrite Rights Offerings? Some New Evidence', *Journal of Financial Economics*, Vol. 46, pp. 223-61.

Cronqvist, H. & M. Nilsson (2000), 'Why Do Public Firms Place Equity Privately? An Empirical Analysis', Working Paper (University of Chicago).

Eckbo, B.E. & R.W. Masulis (1992), 'Adverse Selection and the Rights Offer Paradox', *Journal of Financial Economics*, Vol. 32, pp. 293-332.

Hertzel, M. & R.L. Smith (1993), 'Market Discounts and Shareholder Gains for Placing Equity Privately', *Journal of Finance*, Vol. 48, pp. 459-85.

Loderer, C. & H. Zimmerman (1988), 'Stock Offerings in a Different Institutional Setting: The Swiss Case, 1973-83', *Journal of Banking and Finance*, Vol. 12, pp. 353-78.

Marsh, P. (1977), 'An Analysis of Equity Rights Issues on the London Stock Exchange', Unpublished PhD Thesis (London Business School).

——— (1994), 'Underwriting of Rights Issues', Office of Fair Trading Research Paper No. 6.

Monopolies and Mergers Commission (MMC, 1999), 'Underwriting Services for Share Offers', Cm 4168 (The Stationery Office).

Myers, S.C. & N.S. Majluf (1984), 'Corporate Financing and Investment Decisions when Firms Have Information that Investors Do Not Have', *Journal of Financial Economics*, Vol. 13, pp. 187-221.

Slovin, M.B., M.E. Sushka & K.W.L Lai (2000), 'Alternative Flotation Methods, Adverse Selection, and Ownership Structure: Evidence from Seasoned Equity Issuance in the UK', *Journal of Financial Economics*, Vol. 57, pp. 157-90.

Tsangarakis, N. (1996), 'Equity Rights Issues: Signaling vs Issue Price Irrelevance Hypothesis', *European Financial Management*, Vol. 2, pp. 299-310.

Wruck, K.H. (1989), 'Equity Ownership Concentration and Firm Value', *Journal of Financial Economics*, Vol. 23, pp. 3-28.

RUNNING HEADS:

ARMITAGE

DO UNDERWRITERS CERTIFY VALUE?

Table 1
Descriptive Statistics

	All issues	*Rights issues*	*Open offers*
Underwriting by arranger			
% of issues 100% underwritten	57.8%	57.0%	59.5%
% of issues 0% underwritten	12.5%	9.1%	19.5%
In sample with some underwriting, av *% underwritten*	91.8%	90.9%	94.1%
N	1374	927	447
Pre-commitment			
% of issues with some pre-commitment	62.7%	63.3%	61.3%
In this sample, average *% pre-committed*	30.2%	25.8%	39.5%
N	1376	927	449
% with shares pre-sold to existing shareholders	53.9%	58.7%	44.1%
In this sample, average *% sold to shareholders*	12.0%	12.4%	11.0%
% with shares pre-sold to others	12.1%	10.6%	15.4%
In this sample, average *% sold to others*	54.7%	53.6%	56.2%
% of issues accompanied by a private placing	12.4%	6.7%	24.2%
In this sample, average *% privately placed*	48.9%	53.2%	46.5%
Pre-renunciation			
% of issues with some shares pre-renounced	34.0%	27.6%	47.3%
In this sample, average *% pre-renounced*	32.2%	32.6%	31.7%
N	1375	927	448
Discount			
Average discount to market price (*discount*)	18.5%	21.0%	13.0%
Median discount to market price	16.0%	17.6%	7.8%
N	1251	858	393
Average discount to TERP	13.1%	15.1%	8.7%
Median discount to TERP	12.0%	13.6%	5.8%
N	1248	855	393

Notes: all proportions are of the amount of the rights issue or open offer plus the amount of the private placing, if any. Shares issued to shareholders of companies being acquired are not included. Shares *underwritten* = underwritten by arranger; *pre-committed* = commitments to subscribe have been received before announcement (= *sold to shareholders* + *sold to others* + *privately placed*); *sold to shareholders* = offered pro rata to existing shareholders and they have undertaken to buy; *sold to others* = offered pro rata to existing shareholders and others have undertaken to buy; *privately placed* = not offered pro rata to existing shareholders; *pre-renounced* = offered pro rata to existing shareholders and renounced before announcement; discount to market price (*discount*) = (market price at close of day before announcement less net dividend per share to which new shares are not entitled, if applicable, less offer price)/(market price less net DPS to which new shares are not entitled); discount to TERP = as for *discount*, but using theoretical ex-rights price instead of market price. Issues at a premium of 5% or more to the market price are excluded from the samples for discount. Sample numbers vary due to missing data. Source: own calculations for all variables, from information in prospectuses and company announcements, from Primark Extel.

Table 2
Factors Affecting Proportion Underwritten

Panel A: Correlations with *% underwritten*

	All issues	*Rights issues*	*Open offers*
% pre-committed	-0.77	-0.86	-0.65
	-44.1	*-51.0*	*-17.9*
N	1,372	926	446
1st proxy for *k*	0.17	0.17	0.12
	6.4	*5.4*	*2.5*
N	1,362	917	445
2nd proxy for *k*			0.07
			1.5
N			271

Panel B: Regressions with *% underwritten* as Dependent Variable

	All issues		*Rights issues*				*Open offers*
	1.	*2.*	*3.*	*4.*	*5.*	*6.*	*7.*
Constant	0.86	1.026	0.90	1.021	0.87	1.05	1.03
	25.2	*99.4*	*20.5*	*101.8*	*14.6*	*20.0*	*47.1*
Discount	-0.30	-0.02	-0.49	-0.14	-0.21	-0.39	0.15
	-4.9	*-0.4*	*-6.5*	*-3.3*	*-1.6*	*-2.7*	*1.4*
Std dev	-4.92	-2.42	-3.54	-0.39	-5.71	-5.61	-4.36
	-10.3	*-7.1*	*-5.7*	*-1.1*	*-7.0*	*-6.7*	*-6.5*
1st proxy for *k*	0.18		0.16		0.13		
	5.0		*3.9*		*1.8*		
2nd proxy for *k*						-0.07	
						-1.0	
% pre-committed		-0.80		-0.90			-0.69
		-35.4		*-42.1*			*-13.6*
Adjusted R^2	16.8%	59.9%	16.6%	74.4%	17.6%	20.8%	45.5%
F-value	75.9	557.3	51.5	742.3	25.8	23.6	99.0
N	1120	1120	765	765	355	264	355

Notes: *t*-statistics are in italics. 1st proxy for k = 1 - (*% privately placed (new) + % pre-renounced*); 2nd proxy for k = *% take-up + % privately placed (old)*; *privately placed* = privately placed before announcement with new investors *(new)* or with existing shareholders *(old)*; *% take-up* = (shares offered pro rata to existing shareholders for which they subscribe)/(open offer shares + privately placed shares), excluding offers with share price < offer price at close or not known; *std dev* = standard deviation of daily share return during 80 days before and 80 days after the event period. Take-up figures are from company announcements after offer close. Other details are as in Table 1.

Table 3
Abnormal Returns around Rights Issues and Open Offers

Cumulative average abnormal returns (AARs)for:	*Announcement (days -1 to 0)*	*Offer period (+1 to C-2)*	*Offer close (C-1 to C)*	*Post offer (C+1 to C+20)*
All issues	-0.96%	-1.93%	0.56%	2.13%
(N = 1,008)	*-9.65*	*-4.94*	*6.49*	*7.30*
% negative	58.2	58.0	45.4	44.3
Rights issues	-2.24%	-2.67%	0.76%	2.47%
(N = 702)	*-22.92*	*-7.17*	*7.30*	*6.79*
% negative	68.2	60.3	42.2	43.9
Open offers	1.99%	-0.23%	0.10%	1.34%
(N = 306)	*17.19*	*1.89*	*0.72*	*2.97*
% negative	35.3	52.9	52.9	45.1
t-stat for open offer AAR less rights issue AAR	5.63	2.33	-2.76	-0.96

Notes: see Section 4(i) for method of calculation. *z*-statistics are in italics. An AAR and its *z*-statistic can differ in sign because the ARs are not equally weighted in arriving at the *z*-statistic.

Table 4
Abnormal Returns on Announcement

	Announcement AAR	*N*	*z-stat*	*% negative*	*t-stat for difference in AAR*
Rights issues					
% underwritten > 50%	-2.58%	618	*-24.7*	69.3	
% underwritten < 50%	0.28%	83	*-0.6*	64.2	-1.04
1st proxy for $k = 1$	-2.96%	472	*-22.9*	69.1	
1st proxy for $k < 1$	-0.86%	225	*-7.7*	67.6	-2.29
2nd proxy for k > median	na				
2nd proxy for k < median	na				
With pre-renounced shares	-1.63%	209	*-10.3*	68.4	
Without pre-renounced shares	-2.49%	493	*-20.6*	68.2	0.97
With private placing	3.99%	35	*6.3*	48.6	
Without private placing	-2.57%	667	*-25.0*	69.3	2.27
Discount > median	-0.96%	339	*-10.4*	65.2	
Discount < median	-3.90%	339	*-24.0*	72.6	3.57
Open offers					
% underwritten > 50%	2.92%	243	*19.3*	32.9	
% underwritten < 50%	-1.71%	62	*-0.3*	45.2	2.14
1st proxy for $k = 1$	2.34%	117	*10.2*	38.5	
1st proxy for $k < 1$	1.85%	188	*14.2*	33.0	0.40
2nd proxy for k > median	3.85%	112	*16.8*	28.6	
2nd proxy for k < median	2.52%	112	*9.1*	31.3	1.08
With pre-renounced shares	2.02%	158	*14.3*	32.3	
Without pre-renounced shares	2.05%	147	*10.3*	38.1	-0.02
With private placing	0.13%	47	*3.0*	36.2	
Without private placing	2.33%	259	*17.4*	35.1	-0.92
Discount > median	3.04%	143	*14.9*	31.5	
Discount < median	0.60%	143	*7.8*	37.8	1.95

Notes: announcement AAR = cumulative average abnormal return for days -1 to 0. Median refers to median value for each variable by type of offer. Other details are as in previous tables.

Table 5
Cross-Sectional Regressions for Abnormal Returns on Announcement

	All issues 1.	*All issues 2.*	*All issues 3.*	*Rights issues 4.*	*Rights issues 5.*	*Open offers 6.*	*Open offers 7.*	*Open offers 8.*
Constant	0.042	0.058	0.070	0.049	0.066	0.016	0.053	0.034
	5.65	*4.67*	*5.06*	*2.60*	*3.33*	*0.86*	*2.56*	*2.22*
Discount	-0.207	-0.254	-0.247	-0.271	-0.239	-0.237	-0.260	-0.107
	-5.09	*-8.92*	*-9.00*	*-7.73*	*-6.93*	*-4.97*	*-5.80*	*-2.25*
Rights issue	-0.019	-0.017	-0.016					
	-2.24	*-2.21*	*-1.99*					
Div yield	-0.033							
	-1.16							
% underwritten		-0.015		-0.027		0.030		
		-1.32		*-1.59*		*1.67*		
1st proxy for *k*			-0.032		-0.047		-0.008	
			-2.11		*-2.40*		*-0.33*	
2nd proxy for *k*								0.015
								0.62
% privately placed				0.169		0.021		
				4.20		*0.52*		
% pre-renounced				0.014		0.014		
				0.70		*0.54*		
Adjusted R^2	10.3%	10.5%	10.8%	9.8%	7.0%	10.6%	10.3%	2.2%
F-value	33.1	38.4	39.2	19.1	25.6	9.14	16.9	3.0
N	853	963	959	677	674	285	286	218

Notes: table shows OLS regressions in which dependent variable is cumulative abnormal return (AR_{it}) for days -1 to 0. *t*-statistics are in italics. *Div yield* = (market price/TERP) x (new DPS/previous DPS). New DPS/previous DPS is assumed to equal one unless prospectus contains a new DPS forecast. Companies not paying a dividend are excluded. *Rights issue* = dummy variable which equals one if issue is a rights issue, and zero otherwise. Other details are as in previous tables.

Table 6
Abnormal Returns around Deep Discount Issues

Cumulative average abnormal returns for:	*Announcement (days -1 to 0)*	*Offer period (+1 to C-2)*	*Offer close (C-1 to C)*	*Post offer (C+1 to C+20)*
All issues	-8.49%	-10.19%	1.10%	8.37%
(N = 115)	*-16.73*	*-4.76*	*2.10*	*3.28*
% negative	73.0	69.6	42.6	40.0
Rights issues	-7.73%	-10.46%	1.35%	9.06%
(N = 92)	*-14.81*	*-4.25*	*2.24*	*3.42*
% negative	75.0	69.6	41.3	41.3
Open offers	-11.52%	-9.13%	0.09%	5.62%
(N = 23)	*-7.79*	*-2.14*	*0.24*	*0.50*
% negative	65.2	69.6	47.8	34.8

Note: Sample consists of issues at a discount to pre-announcement market price of 30% or deeper. *z*-statistics are in italics.

Table 7
Evidence on Deep Discounts

Panel A: Reason for Deep Discount	**Number**	**%**
1. *Crisis*. The Chairman's letter states explicitly that the company will not survive or is unlikely to survive unless the issue proceeds.	56	32.2
2. *Distress*. The letter states or implies that the issue would not have been proposed were the company not in financial difficulty, but stops short of saying the company could not continue without the issue.	63	36.2
3. *Recent or current difficult trading*. There is no apparent reason for a deep discount except that the letter states that trading is or has recently been difficult.	22	12.6
4. *Risky use of proceeds*. The letter emphasises that the proceeds will be used in a speculative venture. These are either mining or technology companies.	5	2.9
5. *To dispense with cost of underwriting*. This reason is given in nine letters, but one of the companies is in category three and one in category four.	7	4.0
6. *Not known*. There is no reason for a deep discount discernible in the prospectus.	21	12.1
Total	174	100.0

Panel B: Event Study Results	*Announcement AAR (%)*	*z-statistic*	*% negative*	*Offer period AAR (%)*	*z-statistic*	*% negative*	*N*
Poor performers (categories 1-3)							
All issues	-10.29	*-16.57*	72.3	-9.89	*-3.48*	69.6	94
Rights issues	-9.82	*-14.89*	75.3	-9.24	*-2.92*	69.4	73
Open offers	-11.93	*-7.30*	61.9	-12.23	*-1.92*	70.0	21
Others (categories 4-6)							
All issues	-0.40	*-4.07*	76.2	-12.36	*-3.74*	71.4	21
Rights issues	0.32	*-3.39*	73.7	-15.96	*-3.70*	73.7	19
Open offers	-7.23	*-2.74*	100.0	21.78	*-0.73*	50.0	2
t-statistic for difference in AAR (all issues)	*1.92*			*-0.39*			

Table 8
Abnormal Returns for Uncontaminated Sample

Cumulative average abnormal returns for:	*Announcement (days -1 to 0)*	*Offer period (+1 to C-2)*	*Offer close (C-1 to C)*	*Post offer (C+1 to C+20)*
All issues	-2.23%	-2.83%	0.54%	-0.12%
(N = 124)	*-11.79*	*-3.62*	*2.35*	*0.25*
% negative	66.9	63.7	41.1	50.8
Rights issues	-3.23%	-3.94%	0.87%	-0.14%
(N = 98)	*-14.88*	*-4.92*	*2.86*	*-0.13*
% negative	75.5	68.4	36.7	52.0
Open offers	1.03%	1.32%	-0.69%	-0.04%
(N = 26)	*3.14*	*1.66*	*-0.42*	*0.80*
% negative	34.6	46.2	57.7	46.2
t-stat for open offer AAR less rights issue AAR	2.81	1.30	-2.79	0.02

Notes: Sample consists of issues with no news on announcement other than issue itself. *z*-statistics are in italics.